BRUHATH BANGALORE MAHANAGARA PALIKE

Name of the Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	:	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Estimate Cost	:	Rs.

QUALITY CONTROL REPORTS TO

Asst. Executive Engineer,
Shettyhalli Sub Division,
BBMP, Bangalore.

CIVIL-TECH CONSULTANTS & ENGINEERS

Building & Highway Material Testing Laboratory
NABL ACCREDITED LABORATOTY AS PER ISO / IEC – 17025:2005
No.23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara,
Basaveshwaranagar, Bangalore – 560 079.

QUALITY CONTROL REPORTS FOR

GRANUALAR SUB BASE (GSB)

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/GSB-1/GR/2015-16 Date : 04.01.2016

GRADATION FOR GSB-I (CLOSE GRADED)
IS: 2720 (Part 4)

Customer : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of work : Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/99/2014-15 Dated: 27.06.2014

Date of Testing : 04.01.2016

Sample Source : GSB Mix Plant Bangalore. **Oven Dry Wt (gm) :** 8080

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	0	100
53.0	230	230	2.85	97.15	80-100
26.50	2895	3125	38.68	61.32	55-90
9.50	1285	4410	54.58	45.42	35-65
4.75	965	5375	66.52	33.48	25-55
2.36	855	6230	77.10	22.90	20-40
0.425	660	6890	85.27	14.73	10-25
0.075	780	7670	94.93	5.07	3-10
PAN	410				
Total	8080				

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

Note:

1.The report shall not be reproduced, except in full, without the written approval of the laboratory.

2. The results indicated above are based on the tests carried out on the samples received in the laboratory.

3. Any Query regarding the report must be reported within 30 days from the date of testing.

AE
W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶಿಕ್ಷಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಪಾಶ್ಚಿಮ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ಕೃಷ್ಣ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/GSB-1/GR/2015-16 Date : 04.01.2016

GRADATION FOR GSB-I (CLOSE GRADED)

IS: 2720 (Part 4)

CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

Customer : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of work : Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/99/2014-15 Dated: 27.06.2014

Date of Testing : 04.01.2016

Sample Source : GSB Mix Plant Bangalore. **Oven Dry Wt (gm) :** 7865

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	0	100
53.0	240	240	3.05	96.95	80-100
26.50	2695	2935	37.32	62.68	55-90
9.50	1260	4195	53.34	46.66	35-65
4.75	1010	5205	66.18	33.82	25-55
2.36	865	6070	77.18	22.82	20-40
0.425	655	6725	85.51	14.49	10-25
0.075	790	7515	95.55	4.45	3-10
PAN	350				
Total	7865				

Civil-Tech Consultants & Engineers Bangalore

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

AE W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/GSB-1/AL/2015-16

Date : 05.01.2016

ATTERBERG LIMITS TEST FOR GSB (CLOSE GRADED)
IS : 2720 (Part - 5)

Customer : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of work : Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/99/2014-15 Dated: 27.06.2014

Date of Testing : 05.01.2016

As per MORTH Table : 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	22.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಡಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

QUALITY CONTROL REPORTS FOR

WET MIX MACADAM(WMM)

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/Gradation/2015-16 11.01.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/99/2014-15 Dated: 27.06.2014

Date of Testing : 11.01.2016

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7160**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	165	165	2.3	97.7	95-100
22.4	2585	2750	38.4	61.6	60-80
11.2	1150	3900	54.5	45.5	40-60
4.75	965	4865	67.9	32.1	25-40
2.36	810	5675	79.3	20.7	15-30
0.600	660	6335	88.5	11.5	8-22
0.075	625	6960	97.2	2.8	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

AE. W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ರಾಜರಾಜೇಶ್ವರಿ ನಗರ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/Gradation/2015-16 11.01.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/99/2014-15 Dated: 27.06.2014

Date of Testing : 11.01.2016

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7160**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	165	165	2.3	97.7	95-100
22.4	2585	2750	38.4	61.6	60-80
11.2	1150	3900	54.5	45.5	40-60
4.75	965	4865	67.9	32.1	25-40
2.36	810	5675	79.3	20.7	15-30
0.600	660	6335	88.5	11.5	8-22
0.075	625	6960	97.2	2.8	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

AE. W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ರಾಜರಾಜೇಶ್ವರಿ ನಗರ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ವಿಜಯನಗರ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/Gradation/2015-16 11.01.201

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/99/2014-15 Dated: 27.06.2014

Date of Testing : 11.01.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **7310**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	1[illegible]
45	150	150	2.1	97.9	95-[illegible]
22.4	2610	2760	37.8	62.2	[illegible]
11.2	1190	3950	54.0	46.0	[illegible]
4.75	980	4930	67.4	32.6	[illegible]
2.36	850	5780	79.1	20.9	[illegible]
0.600	635	6415	87.8	12.2	[illegible]
0.075	640	7055	96.5	3.5	[illegible]

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/Gradation/2015-16 11.01.201

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of Work : Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : EE/DD/WO/99/2014-15 Dated: 27.06.2014

Date of Testing : 11.01.2016

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7470**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	1.
45	130	130	1.7	98.3	95-100
22.4	2585	2715	36.3	63.7	60-80
11.2	1250	3965	53.1	46.9	40-60
4.75	1015	4980	66.7	33.3	25-40
2.36	900	5880	78.7	21.3	15-30
0.600	645	6525	87.3	12.7	8-22
0.075	650	7175	96.1	3.9	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

AE W.12

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

QUALITY CONTROL REPORTS FOR

BITUMINOUS MACADAM

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/BM/Bitumen/2015-16 27.01.2016

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO/99/2014-15 Dated: 27.06.2014
SAMPLE I/D	Roads in Shastri layout ward No.12.
DATE OF TESTING	27.01.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	483	481.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17	18.50
7. Bitumen content in %	3.40	3.70
8. Average	3.55	

Civil-Tech Consultants & Engineers Bangalore

Note:

- This test report should not be reproduced except in full, without written approval of this laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 30 days from date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AE W-12

27/1

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/BM/Bitumen/2015-16 27.01.2016

GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO/99/2014-15 Dated: 27.06.2014
SAMPLE I/D	Roads in Shastri layout ward No.12.
DATE OF TESTING	27.01.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	32.36	6.70	6.70	93.30	90-100
13.2	88.25	18.27	24.97	75.03	56-88
4.75	258.4	53.50	78.47	21.53	16-36
2.36	46.32	9.59	88.06	11.94	4-19
0.3	25.35	5.25	93.31	6.69	2-10
0.075	10.25	2.12	95.43	4.57	0-8

Þ The results indicated above are based on the tests carried	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	33.36	6.93	6.93	93.07	90-100
13.2	80.25	16.67	23.60	76.40	56-88
4.75	256.3	53.23	76.82	23.18	16-36
2.36	45.32	9.41	86.24	13.76	4-19
0.3	25.12	5.22	91.45	8.55	2-10
0.075	13.26	2.75	94.21	5.79	0-8

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory.

Þ The results indicated above are based on the tests carried out on the samples received in the laboratory.

Þ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು**********
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಜೆ.ಪಿ. ಪಾರ್ಕ್, ಪಶ್ಚಿಮವಿಭಾಗ, ಬೆಂಗಳೂರು

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

QUALITY CONTROL REPORTS FOR

BITUMINOUS CONCRETE

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.12/KRIDL/CSR-01/1052/QB(BC)/2015-16 25.01.2016

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Technical Manager (West),** KRIDL, Bangalore.
*NAME OF THE WORK	:	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	:	EE/DD/WO/99/2014-15 Dated: 27.06.2014
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	22.01.2016
DATE OF TESTING	:	25.01.2016

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	66	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	47	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	298	Min. 220

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

AE W.12

****

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ನಗರಪಾಲಿಕೆ ಪಾಲಿಕೆ
ಎಸ್.ಎ.ರ್ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/AIV/2015-16 12.01.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Waid No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	12.01.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	302	
4	Aggregate Impact value = percent fines	21.30	21.76	
	100* (W_2/W_1)%			**21.53**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers

 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AE W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಪಾಲಿಕೆಹಳ್ಳಿ ಮಂಡಲ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/AIV/2015-16 12.01.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	12.01.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	77	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	20.37	20.79	
	100* (W_2/W_1)%			20.58

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers

 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಕ್ರಮಬದ್ಧ ಪಾಲಿಕೆ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/S-T/2015-16 12.01.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	12.01.2016

Result : Flakiness Index = **11.85%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index **25.10%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara
Basaveshwaranagar,
Bangalore-560079.

W12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಪಾಲಿಕೆಹಳ್ಳಿ ಸಬಾಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/S-T/2015-16 12.01.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	12.01.2016

CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **12.35%**

Elongation Index = **13.10%**

Result : Combined Flakiness & Elongation index 25.45%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AE W-12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ರಾಜರಾಜೇಶ್ವರಿ ಪಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/S-T/2015-16 12.01.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	12.01.2016

Result : Flakiness Index = **11.06%**

Elongation Index = **13.58%**

Result : Combined Flakiness & Elongation index 24.64%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಬಾಸವೇಶ್ವರನಗರ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

BSCIC ISO 9001 REGISTERED JAS-ANZ

Job No.: CTCE/BBMP/W.No.12/KRIDL/WMM/S-T/2015-16 12.01.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	12.01.2016

Result : Flakiness Index = **12.55%**

Elongation Index = **13.90%**

Result : Combined Flakiness & Elongation index **26.45%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/BM/Bitumen/2015-16 27.01.2016

BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO/99/2014-15 Dated: 27.06.2014
SAMPLE I/D	Roads in Shastri layout ward No.12.
DATE OF TESTING	27.01.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	483	481.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17	18.50
7. Bitumen content in %	3.40	3.70
8. Average	3.55	

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 30 days from date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಕೆಬ್ಬಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಡಿಸಿಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/BM/Bitumen/2015-16 27.01.2016

GRADATION DETERMINATION OF BITUMINOUS MACADAM MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO/99/2014-15 Dated: 27.06.2014
SAMPLE I/D	Roads in Shastri layout ward No.12.
DATE OF TESTING	27.01.2016

CIVIL-TECH CONSULTANTS & ENGINEERS CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	32.36	6.70	6.70	93.30	90-100
13.2	88.25	18.27	24.97	75.03	56-88
4.75	258.4	53.50	78.47	21.53	16-36
2.36	46.32	9.59	88.06	11.94	4-19
0.3	25.35	5.25	93.31	6.69	2-10
0.075	10.25	2.12	95.43	4.57	0-8

Þ The results indicated above are based on the tests carried	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	33.36	6.93	6.93	93.07	90-100
13.2	80.25	16.67	23.60	76.40	56-88
4.75	256.3	53.23	76.82	23.18	16-36
2.36	45.32	9.41	86.24	13.76	4-19
0.3	25.12	5.22	91.45	8.55	2-10
0.075	13.26	2.75	94.21	5.79	0-8

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory.

Þ The results indicated above are based on the tests carried out on the samples received in the laboratory.

Þ Any Query regarding the report must be reported within 30 days from the date of testing.

****

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ರಾಜರಾಜೇಶ್ವರಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಪಾಲಿಕೆ ಪಾಲಿಕೆ

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/AIV/2015-16 25.01.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	25.01.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	393	394	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	92	94	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	300	
4	Aggregate Impact value = percent fines			
	100* (W_2/W_1) percent	23.41	23.86	**23.63**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers

 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಮಾಗಡಿರಸ್ತೆ ಪಶ್ಚಿಮ
ವಿಭಾಗ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್ ಎಂ ರಸ್ತೆ, ರಾಜಾಜಿನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/AIV/2015-16

25.01.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	25.01.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	80	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	305	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	20.79	20.78	20.78

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಪಾಲಿಕೆ ಪಶ್ಚಿಮ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/AIV/2015-16 25.01.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	25.01.2016

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	21.67	21.88	**21.77**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AE W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Shape.T/2015-16 : 25.01.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: EE/DD/WO/99/2014-15 Dated: 27.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Bituminous Concrete
Date of Testing	: 25.01.2016

CIVIL ENGINEERING TESTING LABORATORY www.civiltechconsultants.com

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.25%**

Elongation Index = **13.68%**

Result : Combined Flakiness & Elongation index **24.93%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Shape.T/2015-16 : 25.01.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: EE/DD/WO/99/2014-15 Dated: 27.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Bituminous Concrete
Date of Testing	: 25.01.2016

Result : Flakiness Index = **11.85%**

Elongation Index = **13.20%**

Result : Combined Flakiness & Elongation index **25.05%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AE W.12

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಎಸ್.ಎಂ. ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Shape.T/2015-16 : 25.01.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	: EE/DD/WO/99/2014-15 Dated: 27.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Bituminous Concrete
Date of Testing	: 25.01.2016

Result : Flakiness Index = **12.34%**

Elongation Index = **13.92%**

Result : Combined Flakiness & Elongation index **26.26%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AE
W.12

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಬಾಸವನಗುಡಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರಪಾಲಿಕೆ
ಪಶ್ಚಿಮ, ಡಿಸ್ಟ್. ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Stripping/2015-16 28.01.2016

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Type of Mix	Bituminous Concrete
Date of Testing	28.01.2016

Type of binder : 60/70

Percentage of binder used : 5.00% by wt.

Total weight of aggregate : 200 g

Total weight of binder : 10.00 g

Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

Note:

1. This test report should not be reproduced except in full, without written approval of the laboratory
2. The results indicated above are based on the tests carried out on the samples received in the laboratory
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

W12

28/1

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಬಾಸವೇಶ್ವರನಗರ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಜೆಸಿ ೨೦ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Ref: CTCE BBMP/W.No.12/KRIDL/BC/Sp_Wa/2015-16 28.01.2016

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12 in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Type of Mix	Bituminous Concrete
Date of Testing	28.01.2016

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	1998	1999	2000	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1245	
4	Weight of saturated surface dry aggregate in air	W_3 g	2021	2022	2023	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	782	784	778	
6	Weight of oven dried aggregate	W_4 g	2003	2005	2006	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.561	2.557	2.578	2.56
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.622	2.614	2.636	2.62
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.90%	0.85%	0.85%	0.86

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

ನಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ಬಾಗಲಕೋಟೆ ಬಿ.ಬಿ.ಎಂ.ಪಿ.
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬಸವೇಶ್ವರ ನಗರ, ಬೆಂಗಳೂರು-೫೬೦೦೭೯

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No: CTCE/BBMP/W.No.12/KRIDL/BC/Bitumen/2015-16 28.01.2016

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO/99/2014-15 Dated: 27.06.2014
SAMPLE I/D	Roads in Shastri Layout in Ward No.12, BBMP, Bangalore.
DATE OF TESTING	28.01.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	473
3. Weight of Asphalt and Mineral matter Extracted, g	-	
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26	27.00
7. Bitumen content in %	5.20	5.40
8. Average	**5.30**	

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory

Þ The results indicated above are based on the tests carried out on the samples at site

Þ Any Query regarding the report must be reported within 30 days from the date of testing

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

W.12

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/W.No.12/KRIDL/BC/Bitumen/2015-16 28.01.2016

BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As Per IS 2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	EE/DD/WO/99/2014-15 Dated: 27.06.2014
SAMPLE I/D	Roads in Shastri Layout in Ward No.12, BBMP, Bangalore.
DATE OF TESTING	28.01.2016

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	45.36	9.57	9.57	90.43	79-100
9.5	35.26	7.44	17.01	82.99	70-88
4.75	65.32	13.78	30.79	69.21	53-71
2.36	67.21	14.18	44.97	55.03	42-58
1.18	56.3	11.88	56.85	43.15	34-48
0.6	62.35	13.15	70.00	30.00	26-38
0.3	40.22	8.49	78.49	21.51	18-28
0.15	41.35	8.72	87.21	12.79	12-20
0.075	33.32	7.03	94.24	5.76	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	41.32	8.74	8.74	91.26	79-100
9.5	42.36	8.96	17.69	82.31	70-88
4.75	76.32	16.14	33.83	66.17	53-71
2.36	68.32	14.44	48.27	51.73	42-58
1.18	68.36	14.45	62.72	37.28	34-48
0.6	39.25	8.30	71.02	28.98	26-38
0.3	36.36	7.69	78.71	21.29	18-28
0.15	33.26	7.03	85.74	14.26	12-20
0.075	33.25	7.03	92.77	7.23	4-10

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory

Þ The results indicated above are based on the tests carried out on the samples received in the laboratory

Þ Any Query regarding the report must be reported within 30 days from the date of testing

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

M/s. Civil-Tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-560079.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL/BC/Agg/2015-16 28.01.2016

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of theWork	Improvements to main and cross roads in Shastri La... Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangal...
Reference	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	28.01.2016

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	620	11.81	11.81	88.19	79 - 100	
9.5	465	8.86	20.67	79.33	70 - 88	
4.75	555	10.57	31.24	68.76	53 - 71	
2.36	620	11.81	43.05	56.95	42 - 58	
1.18	630	12.00	55.05	44.95	34 - 48	
0.600	540	10.29	65.33	34.67	26 - 38	
0.300	565	10.76	76.10	23.90	18 - 28	
0.150	435	8.29	84.38	15.62	12 - 20	
0.075	425	8.10	92.48	7.52	4 - 10	

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	635	11.98	11.98	88.02	79 - 100	
9.5	480	9.06	21.04	78.96	70 - 88	
4.75	590	11.13	32.17	67.83	53 - 71	
2.36	635	11.98	44.15	55.85	42 - 58	
1.18	655	12.36	56.51	43.49	34 - 48	
0.600	585	11.04	67.55	32.45	26 - 38	
0.300	610	11.51	79.06	20.94	18 - 28	
0.150	420	7.92	86.98	13.02	12 - 20	
0.075	400	7.55	94.53	5.47	4 - 10	

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.12/KRIDL /SDBC/Stability/2015-16

28.01.2016

TEST REPORT ON STABILITY OF MIX

Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	:	Improvements to main and cross roads in Shastri Layout, at Abbigere, in Ward No.12, in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	:	EE/DD/WO/99/2014-15 Dated: 27.06.2014
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	28.01.2016

The results of the tests conducted on the bituminous concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.50	9.65	9 Kn (min)
2	Marshal flow, mm	3.35	3.45	2 – 4
3	Percent air voids in Mineral Aggregate	13.40	13.50	13 – 15
4	Voids in Compacted Mix	4.45	4.55	3 – 6
5	Percent Voids filled with Bitumen	72.40	73.20	65 - 75
6	Density, g/cc	2.27	2.26	--

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com